Name: _____   Date: _____
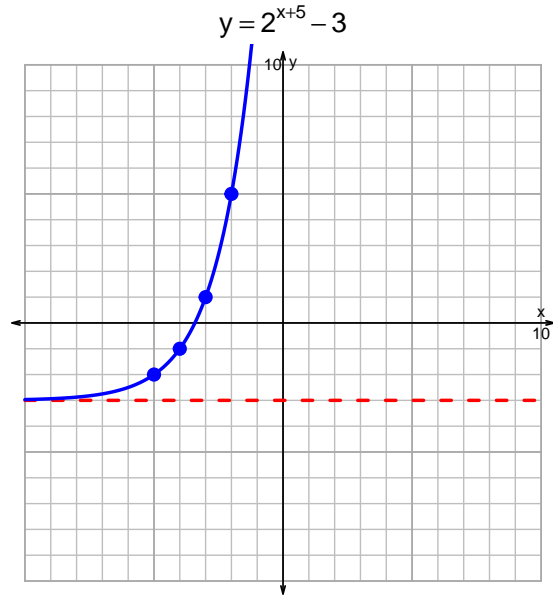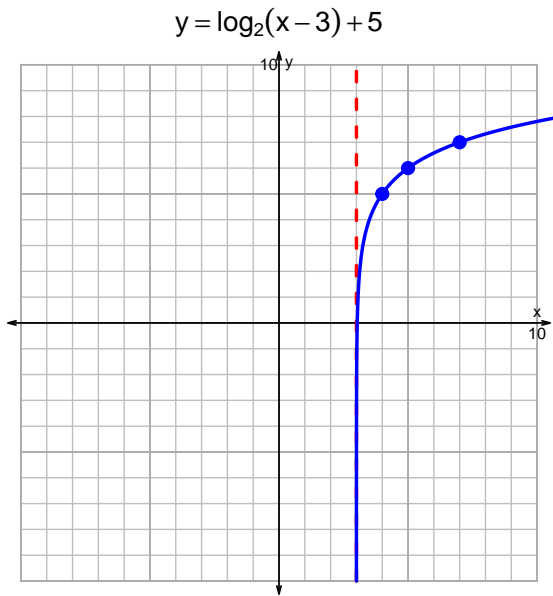
s18QUIZ: EXP LOG (SLTN v283)

1. Graph $y = \log_2(x - 3) + 5$ and $y = 2^{x+5} - 3$ on the grids below. Also, draw any asymptotes with dotted lines.

$$y = \log_2(x - 3) + 5$$

$$y = 2^{x+5} - 3$$

2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$-29 = \left(\frac{-5}{7} \right) \cdot 10^{3t/4}$$

Divide both sides by $\frac{-5}{7}$.

$$\frac{29 \cdot 7}{5} = 10^{3t/4}$$

Take log, base 10, of both sides.

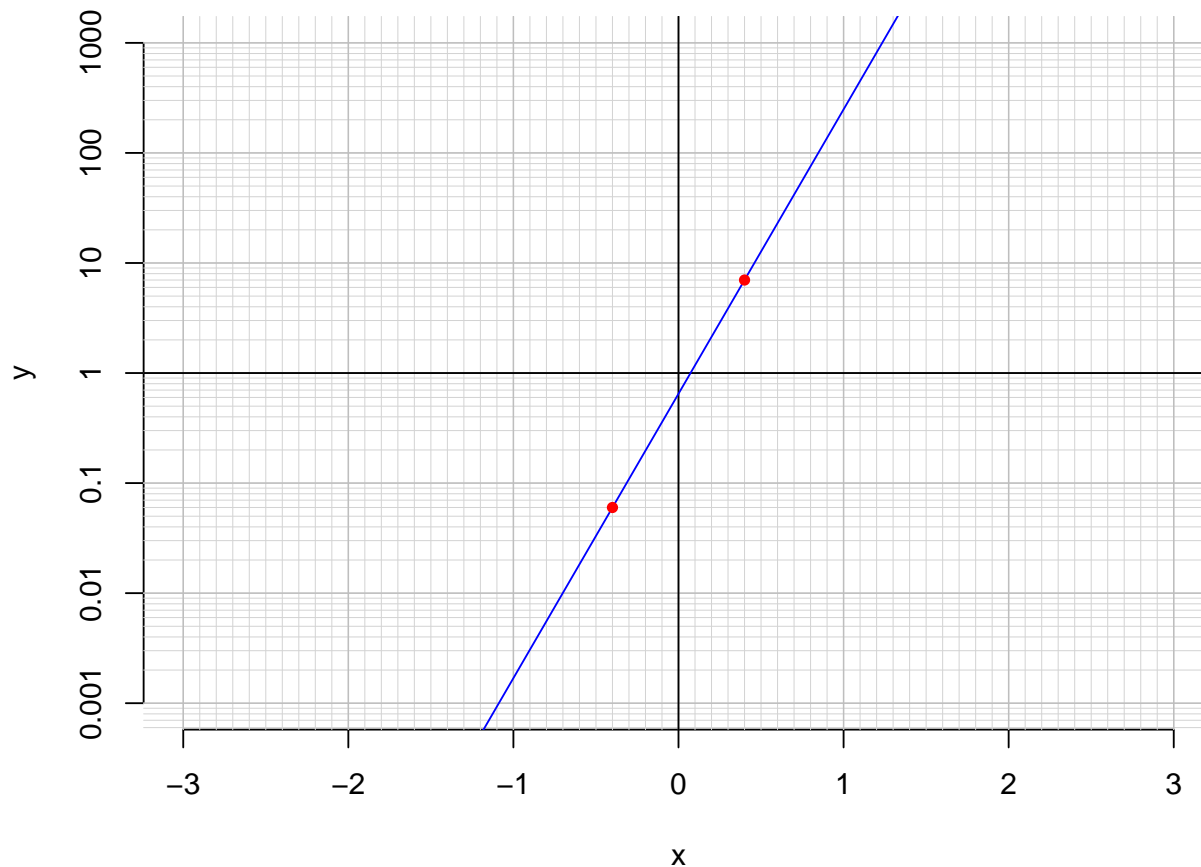$$\log_{10} \left(\frac{29 \cdot 7}{5} \right) = \frac{3t}{4}$$

Divide both sides by $\frac{3}{4}$.

$$\frac{4}{3} \cdot \log_{10} \left(\frac{29 \cdot 7}{5} \right) = t$$

Switch sides.

$$t = \frac{4}{3} \cdot \log_{10} \left(\frac{29 \cdot 7}{5} \right)$$

3. An exponential function $f(x) = 0.648 \cdot e^{5.95x}$ is graphed below on a semi-log plot.

a. Using the plot above, evaluate $f(0.4)$.

$$f(0.4) = 7$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{1}{5.95} \cdot \ln\left(\frac{x}{0.648}\right)$$

c. Using the plot above, evaluate $f^{-1}(0.06)$.

$$f^{-1}(0.06) = -0.4$$